City of Loma Linda California

Loma Linda Connected Community Program
An Overview of Project Objectives and Status

Loma Linda
Connected Community Program

LLCCP beginnings are rooted as a public benefit program that embraced a merging with a public works philosophy and then applied it to the communications revolution. It was not structured to be a profit center. However, it was structured to enhance Economic Development.

LLCCP Advisory Board

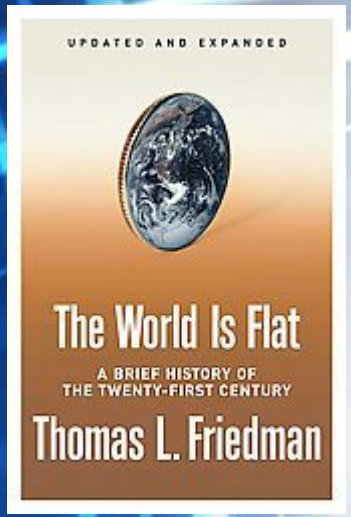
Chamber of Commerce (President, James Walling)
Citizen Representative (Norm Meyer)
Finance Committee (Robert Frost)
LLUMC (CIO, Richard Hergert)
LLU (CIO, DP Harris, PH.D.)
Jerry Pettis VA Hospital (CIO, Shane Elliott)
Loma Linda Academy (CIO, Kirk Campbell)
Loma Linda Broadcasting Network (CEO, Ganim Hanna)
City of Loma Linda, (CIO, James Hettrick, MBA)

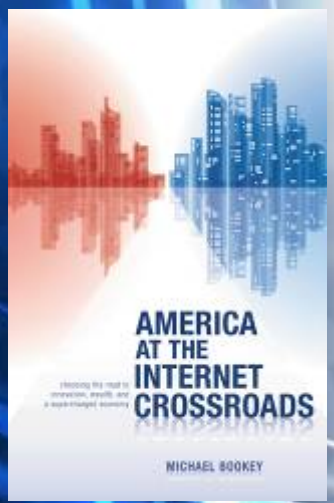
Why Fiber is Important to the Future of Loma Linda

- Fiber is the Communications Infrastructure of the Future of All Professional and Technical Communities.
- This is why every Telephone and Cable TV provider is strategizing how deploy Fiber to their largest customer base.
- This is why every community that is not on these providers lists are struggling to NOT get left behind and become marginalized.
- Loma Linda realized in 2003 that it was not on any list for communication upgrades.

Why Fiber is Important to the Future of Loma Linda

- Loma Linda decided in 2003 to Include Fiber as a Part of it's Infrastructure just like Streets, Parks, Storm Drains, Water Systems, and Traffic Lights.
- The Loma Linda Connected Community Program was created to allow all new developments to utilize this newly available utility.





Why Fiber is Important to the Future of Loma Linda

Fiber is a Necessity for National and International Communication Competitiveness

In a Flat World that continues to shrink the exchange of information and ideas are becoming the driving force behind a new economy.

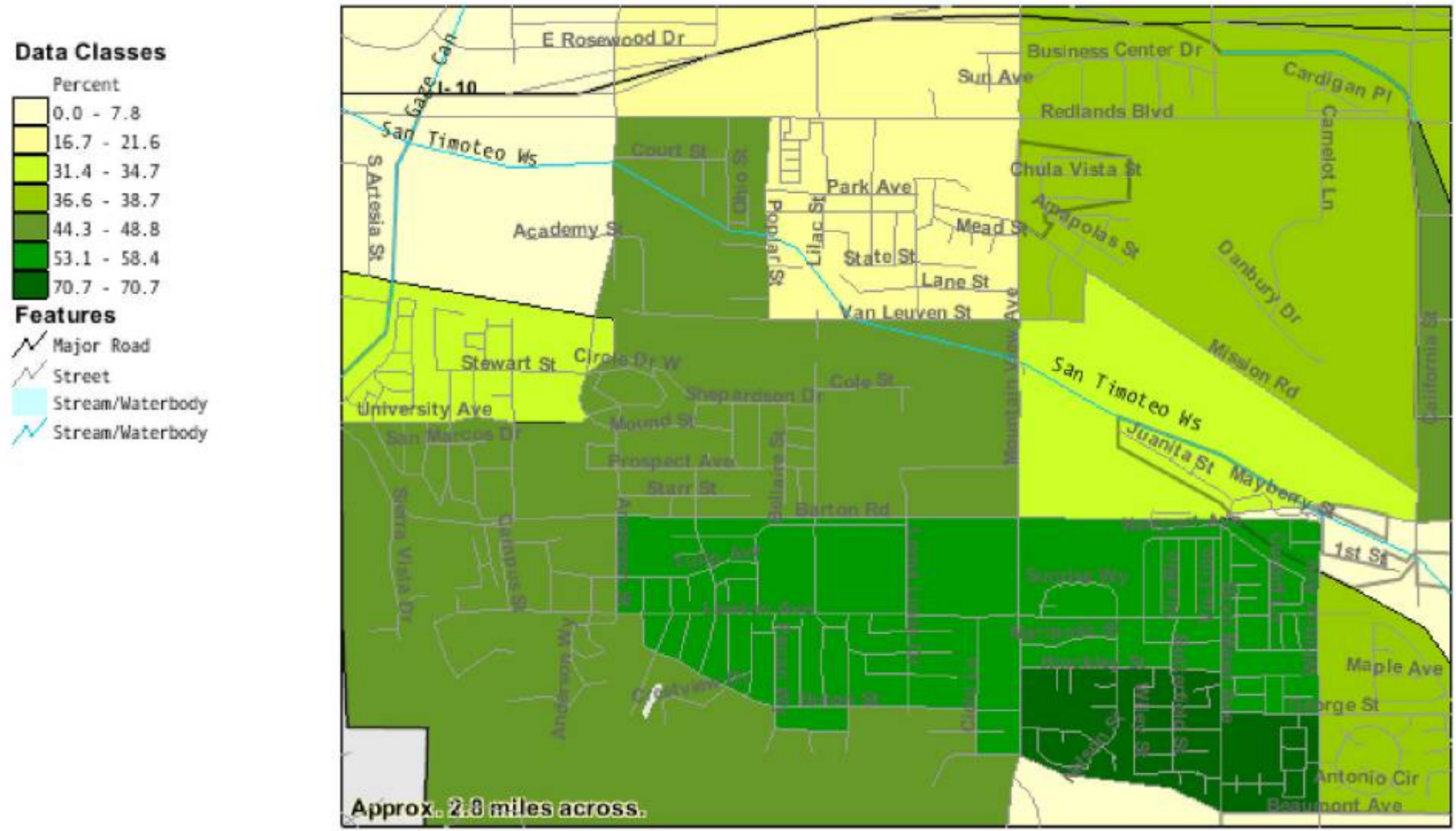
Consider the impact of Thomas L. Friedman Book *The World is Flat* or Michael Bookey book *America at the Internet Crossroads*.

Connected Community Program

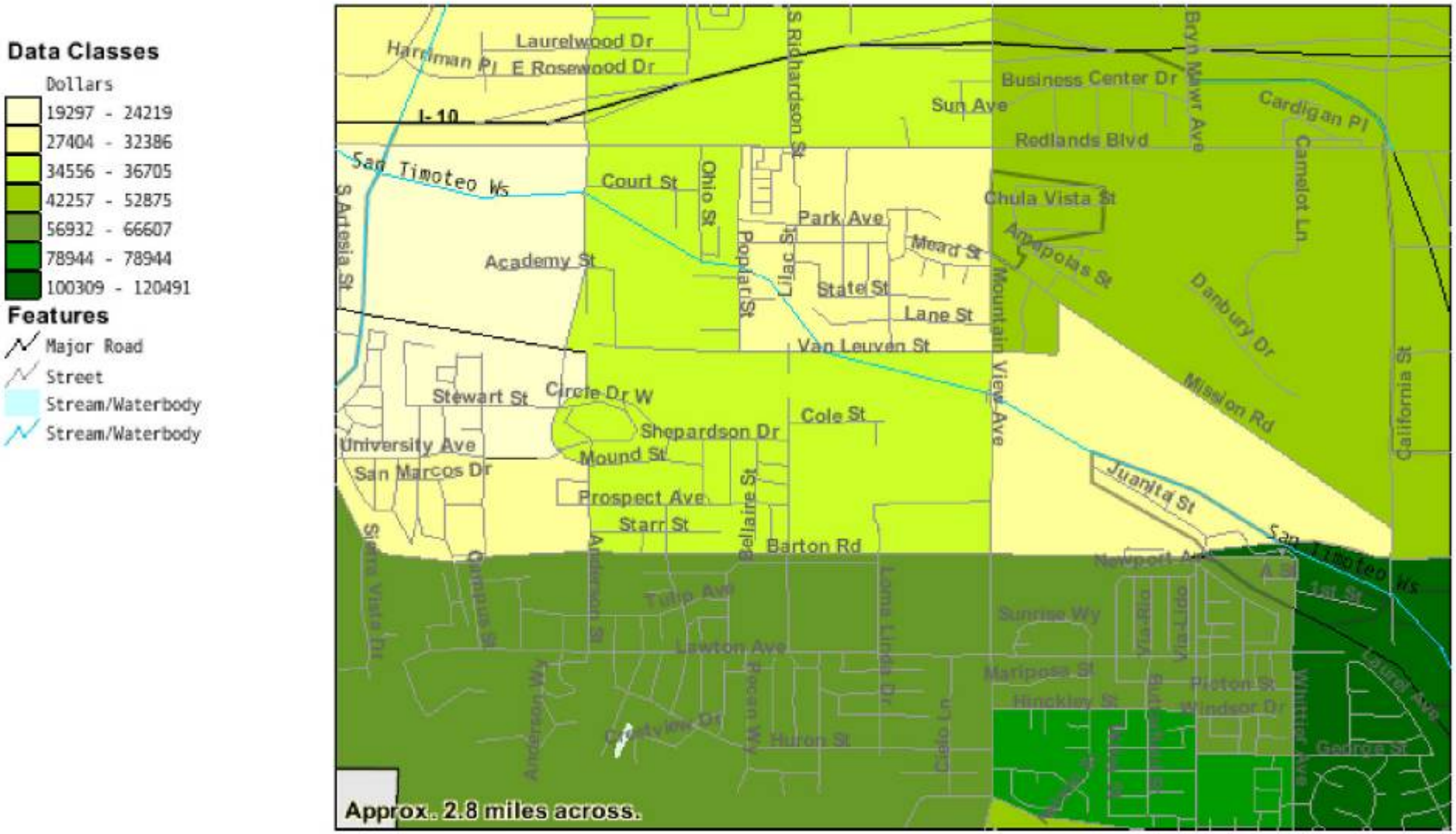
Why Fiber is Important to the Future of Loma Linda

- Fiber Connectivity Provides the Means for Innovation and Progressive Economic Development.
- Loma Linda is a unique community that has international recognition in the health care industries. Loma Linda also has staggering statistics on education levels. 23.5% of the population have a Bachelor's degree and 21.2% of the population have a graduate or professional degree. Coupling this with the global economy and Loma Linda becomes an attractive candidate for international corporations to partner with the commercial entities and the municipal's LLCCP

Bachelor Degree or Higher

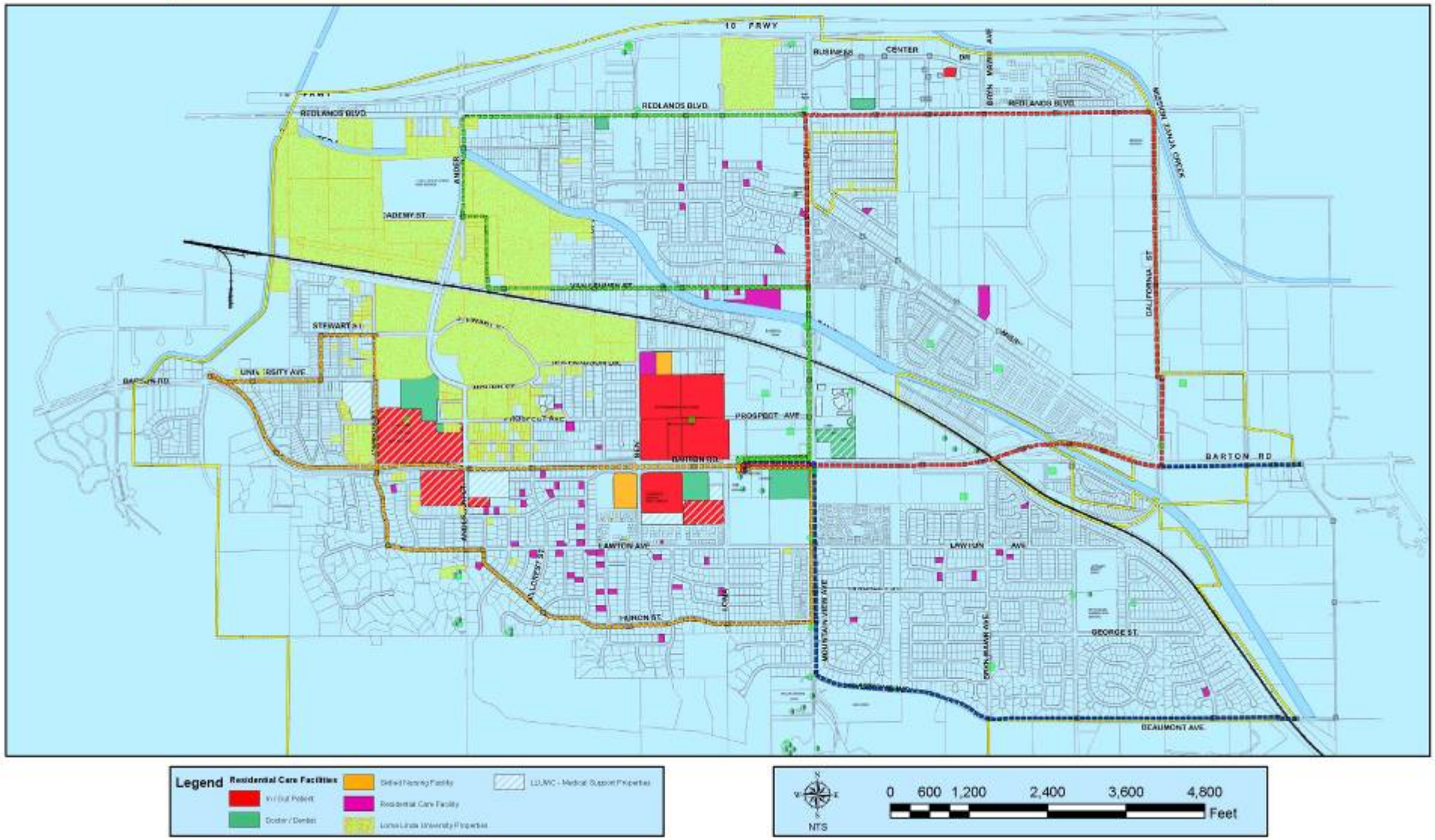


Median Family Income



OCCUPATION	US	LL	Dif.
Management, professional, and related occupations	33.6%	55.0%	+21.4%
Sales and office occupations	26.7%	20.2%	-6.5%
Total	60.3%	75.2%	+14.9%

City of Loma Linda
Residential and Medical Care Facilities



Why Fiber is Important to the Future of Loma Linda

Fiber Provides the Communication Capabilities that theFuture Generation considers “Quality Of Life.”

Extremly fast symmetrical connections to family, friends and the internet and simatanously secure, reliable connections to work and other local commericial entities while still being able to utilize legacy services as nessasary.

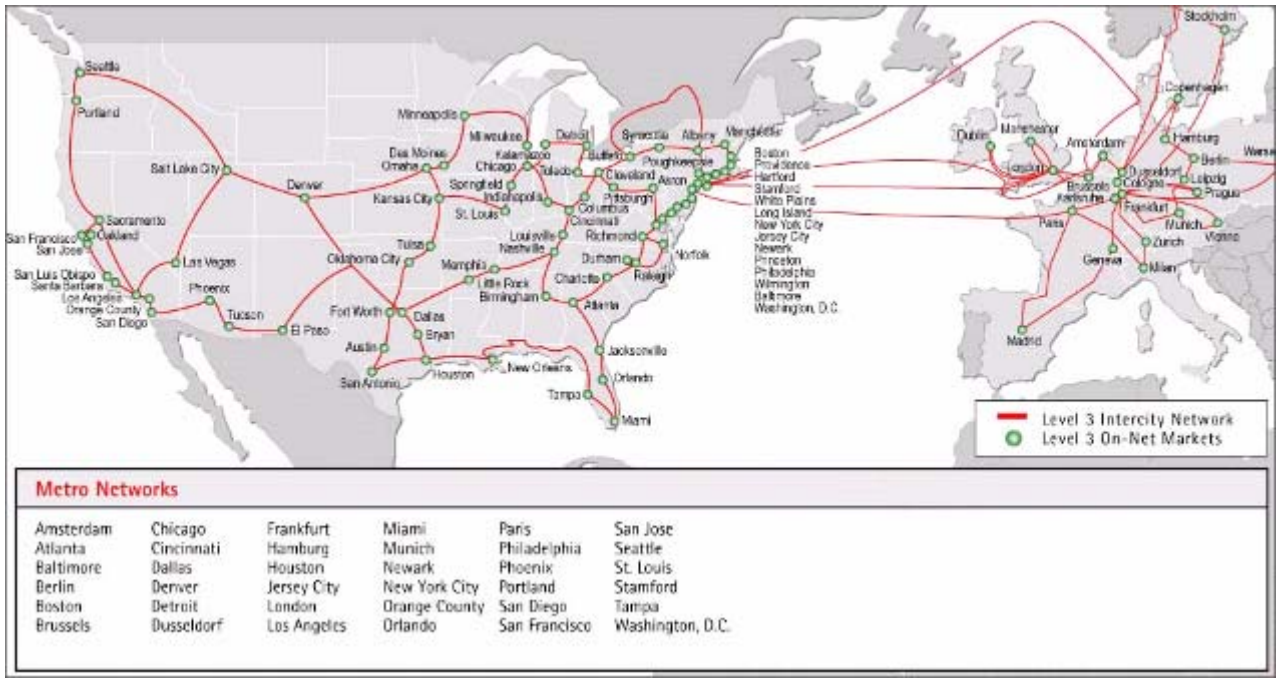
- Work will be accomplished in a wide variety of places and on the go; it has become “location neutral”
- Work will “travel” to the worker, rather than the worker to the work
- Work will be spread throughout the day and week (24x7); no more “8 to 5” agricultural schedules

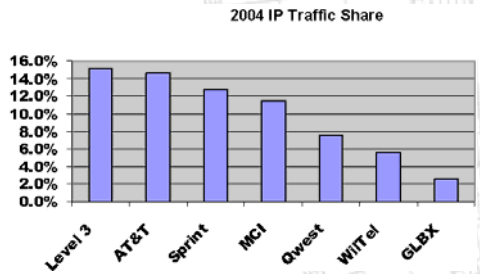
FUTURE of WORK

Connected Community Program

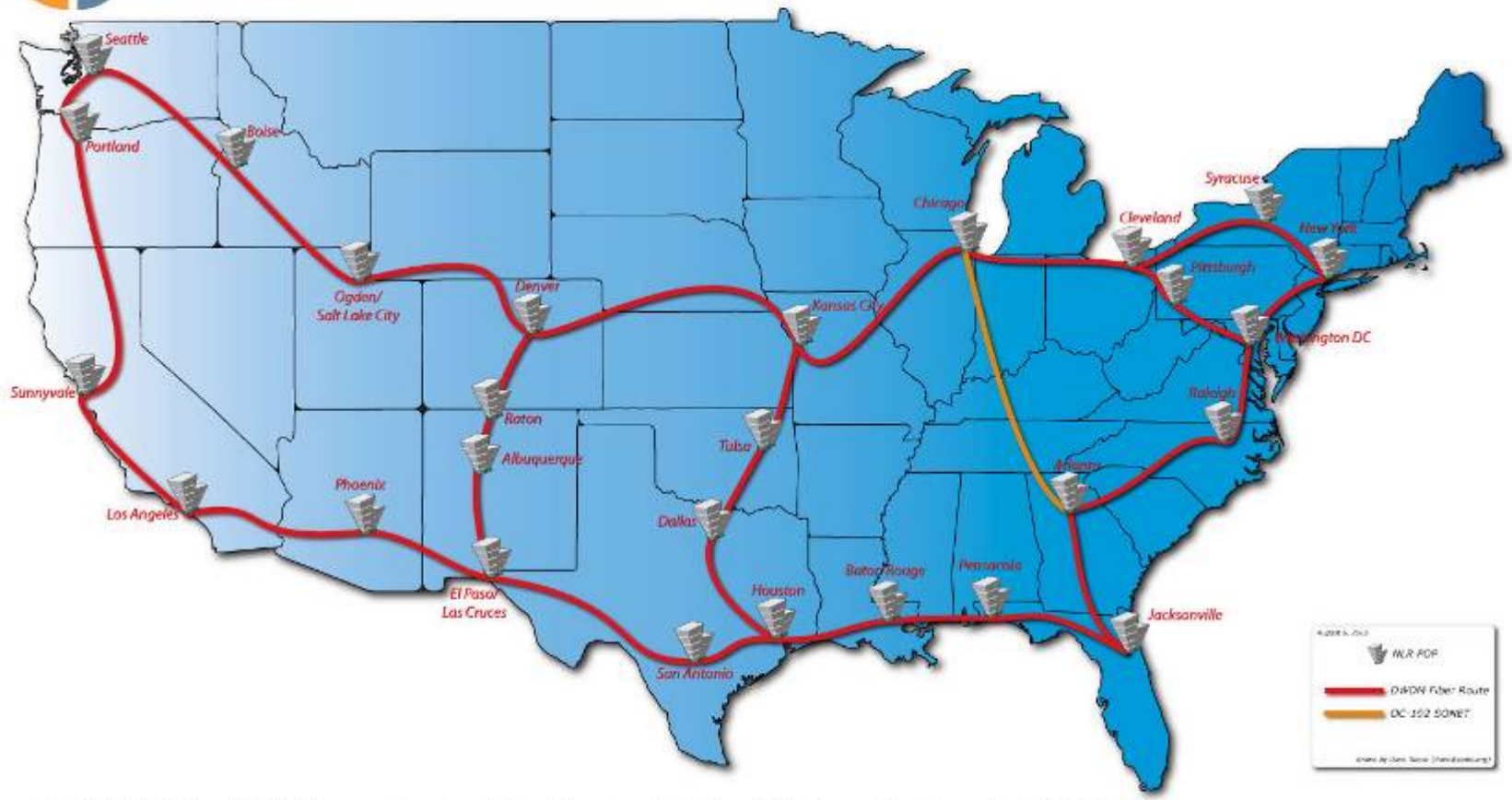
Public Internet Layer

- Level 3 is one of the world's largest Internet traffic carriers, carrying more than 3.7 petabytes per day
- Level 3 is one of only six Tier 1 Internet providers in the world today
- When an Internet backbone serves both large content providers and large Internet-providing companies, performance increases
  - The largest ISPs connect over 60 million people to the Internet using Level 3





National LambdaRail™ Infrastructure



For more information regarding NLR see http://www.nlr.net or contact info@nlr.net

cenic
Corporation for Education Network Initiatives in California

LEADING THE WAY TO TOMORROW'S INTERNET

Level (3) ACADEMIC

Throughout California, Level 3 offers CENIC members:

- -Dark Fiber
- -Colocation Space
- -Wavelengths
- -High Speed IP
- -Private Line
- -Ethernet
- -VPN
- -VoIP with E-911

Contact: Erik.Hunsinger@Level3.com
(720) 888-1758

Why Fiber is Important to the Future of Loma Linda

Fiber Connectivity is the Primary way to Create a Globally Competitive Community.

The world bank research shows how open access networks are changing the economy in community that have prioritized connectivity.

The World Bank

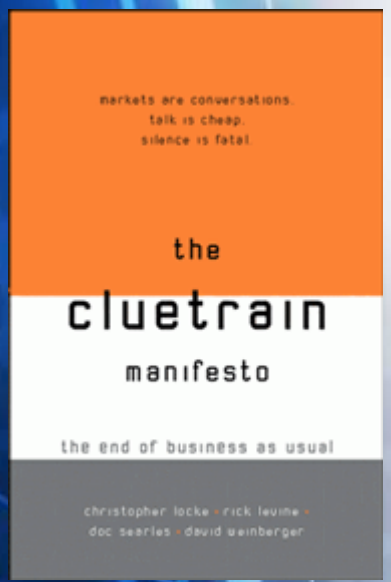
IBRD & IDA: Working for a World Free of Poverty

Connected Community Program

World Bank (infoDev) Local Open Access Networks Project - It provides a systematic review of local open access networks being deployed by municipal governments. Contact Rajesh Vasudevan (rvasudevan@worldbank.org) and Charles Watt cwatt1@worldbank.org).

- **Africa - 5 projects**
  - South Africa - Tshwane Metropolitan Network; Uni-Fi Knysna; City of Johannesburg Network; Uninet Cape Town; Ghana - Akwapim Community Wireless Network
- **South America - 1 project**
  - Brazil - Pirai Digital
- **Asia - 2 projects**
  - India - Andhra Pradesh Broadband Consortium's Aksh Project; Nepal – Wireless Nepal
- **North America - 10 projects**
  - United States –
    - Loma Linda; UTOPIA; Philadelphia; ZIPP Network-Grant County; iTown-Beckley, W.Virginia; AllCoNet (Alleghany County); NYC Wireless; Manassas
  - Canada - SaskTel Regina (Saskatchewan)
- **Europe - 6 projects**
  - Netherlands - Nuenen; Poland-National Telecom Cooperative Association; Denmark – Djurslands Net; Scotland - Connected Communities-Western Isles; United Kingdom - Brighton Metranet; Sweden – Malarnet City (Vasteras);
- http://www.infodev.org/files/2181_file_EoI_Municipal_Broadband_Networksf.pdf

“Communities will make more money 'because' of infrastructure than 'with' infrastructure.“ Doc Searls

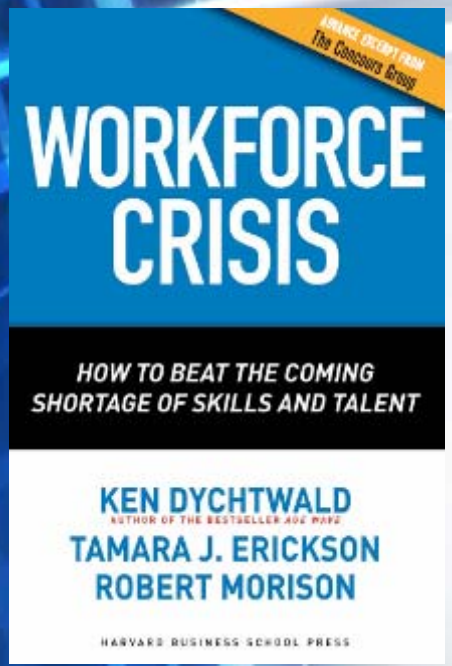


Doc Searls is a co-author of *The Cluetrain Manifesto: The End of Business as Usual*, a *New York Times*, *Wall Street Journal*, *Business Week*, Borders Books and Amazon.com bestseller. (It was Amazon's #1 sales & marketing bestseller for thirteen months and sells around the world in nine languages.)

"In the developed countries, the dominant factor in the next society will be something to which most people are only just beginning to pay attention: the rapid growth in the older population and the rapid shrinking of the younger generation. Politicians everywhere still promise to save the existing pensions system, but they—and their constituents—know perfectly well that in another 25 years people will have to keep working until their mid-70s, health permitting.

What has not yet sunk in is that a growing number of older people— say those over 50—will not keep on working as traditional full-time nine-to-five employees, but will participate in the labor force in many new and different ways."

—Peter F. Drucker



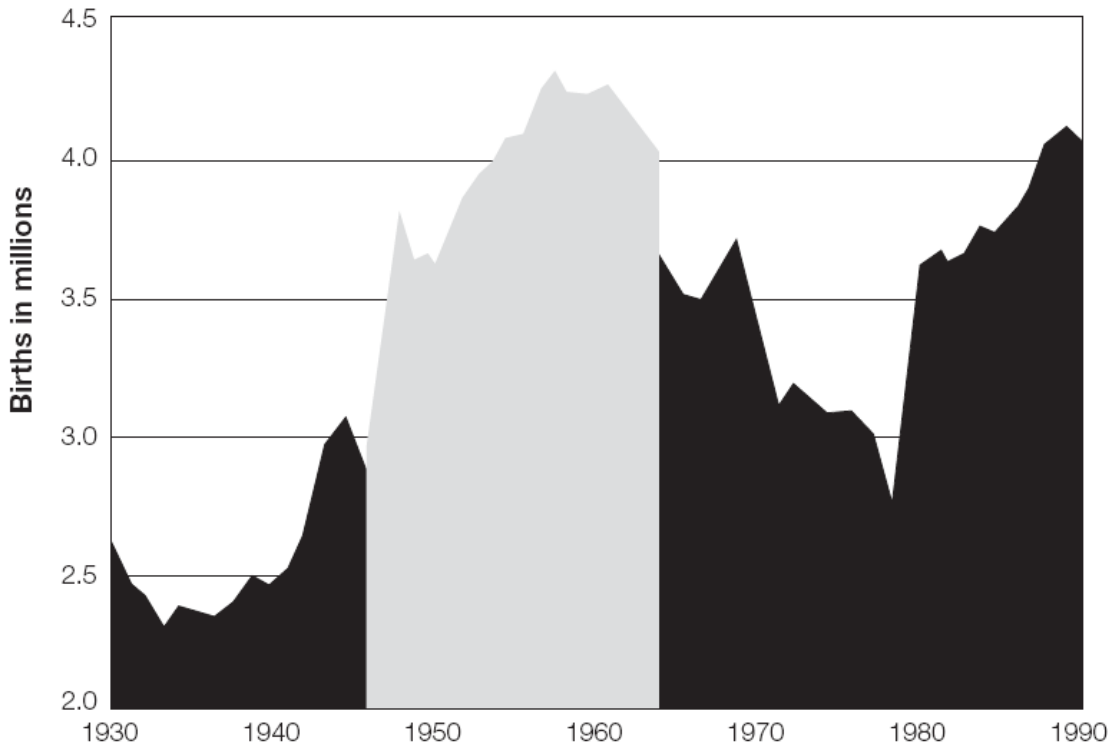
Unprecedented shifts in the age distribution and diversity of the global labor pool are underway. Within the decade, as the massive boomer generation begins to retire and fewer skilled workers are available to replace them, companies in industrialized markets will face a labor shortage and brain drain of dramatic proportions.

Ken Dychtwald, Tamara Erickson, and Robert Morison argue that companies who ignore these shifts at great peril. Survival will depend on redefining retirement and transforming management and human resource practices to attract, accommodate, and retain workers of all ages and backgrounds.

Connected Community Program

FIGURE 1-1

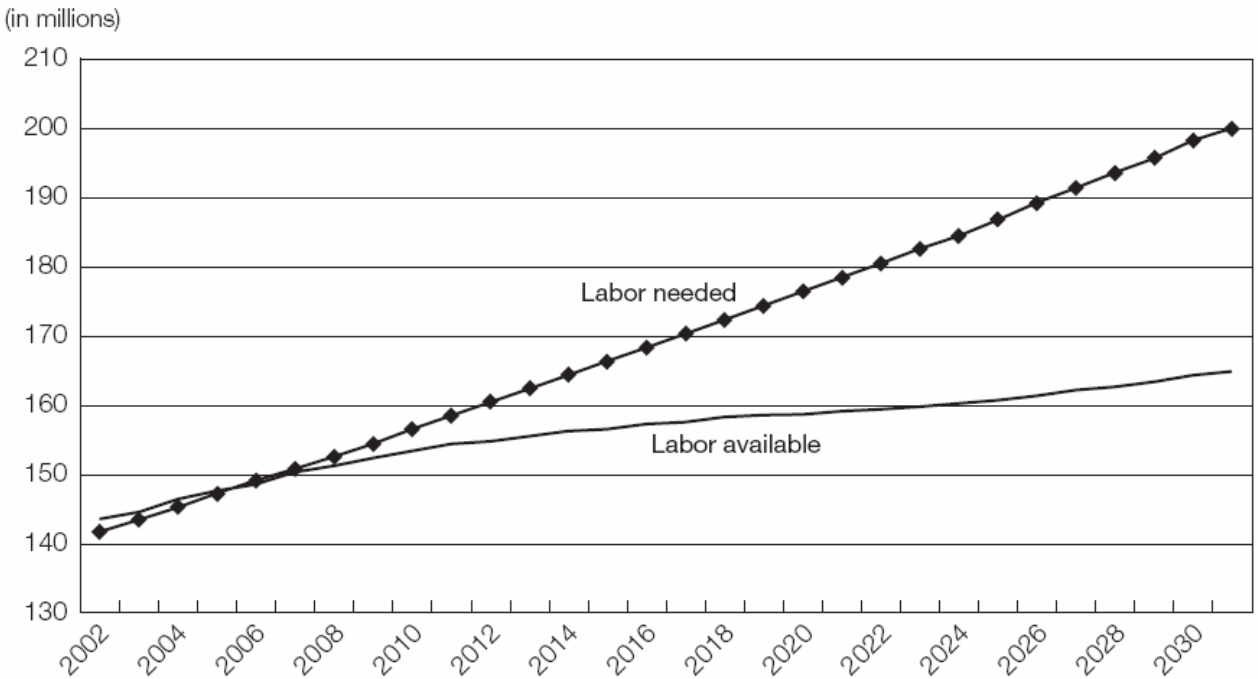
The baby boom: 1946–1964



Source: U.S. Census Bureau

FIGURE 1-7

Labor force needed to maintain economic growth



Source: Employment Policy Foundation analysis and projections of Census, Bureau of Labor Statistics, and Bureau of Economic Analysis data

Workforce Values and Expectations*

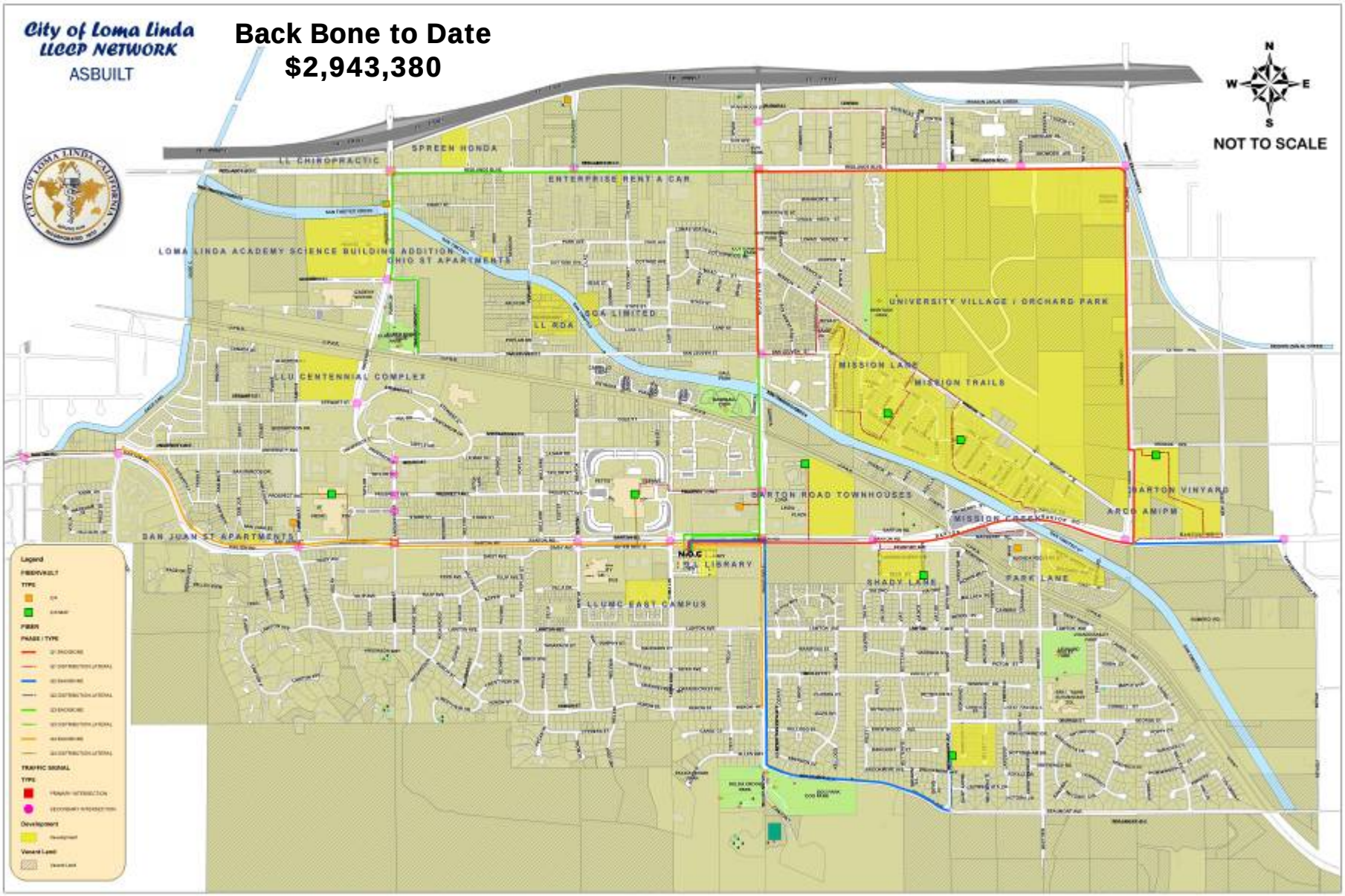
VALUES	TRADITIONAL WORKER
Career	Company's Responsibility
Promotion	Tenure
Retention	Security
Management Style	Paternalistic
Organization Chart	Admire
Changing Jobs	Fear

Type of Worker	1997	1999	2003	2007
Emergent	20%	22%	31%	**52%**
Migrating	46%	49%	48%	**40%**
Traditional	34%	29%	21%	**8%**

* http://www.spherion.com/corporate/aboutus/newsevents/EWFrelease.jsp

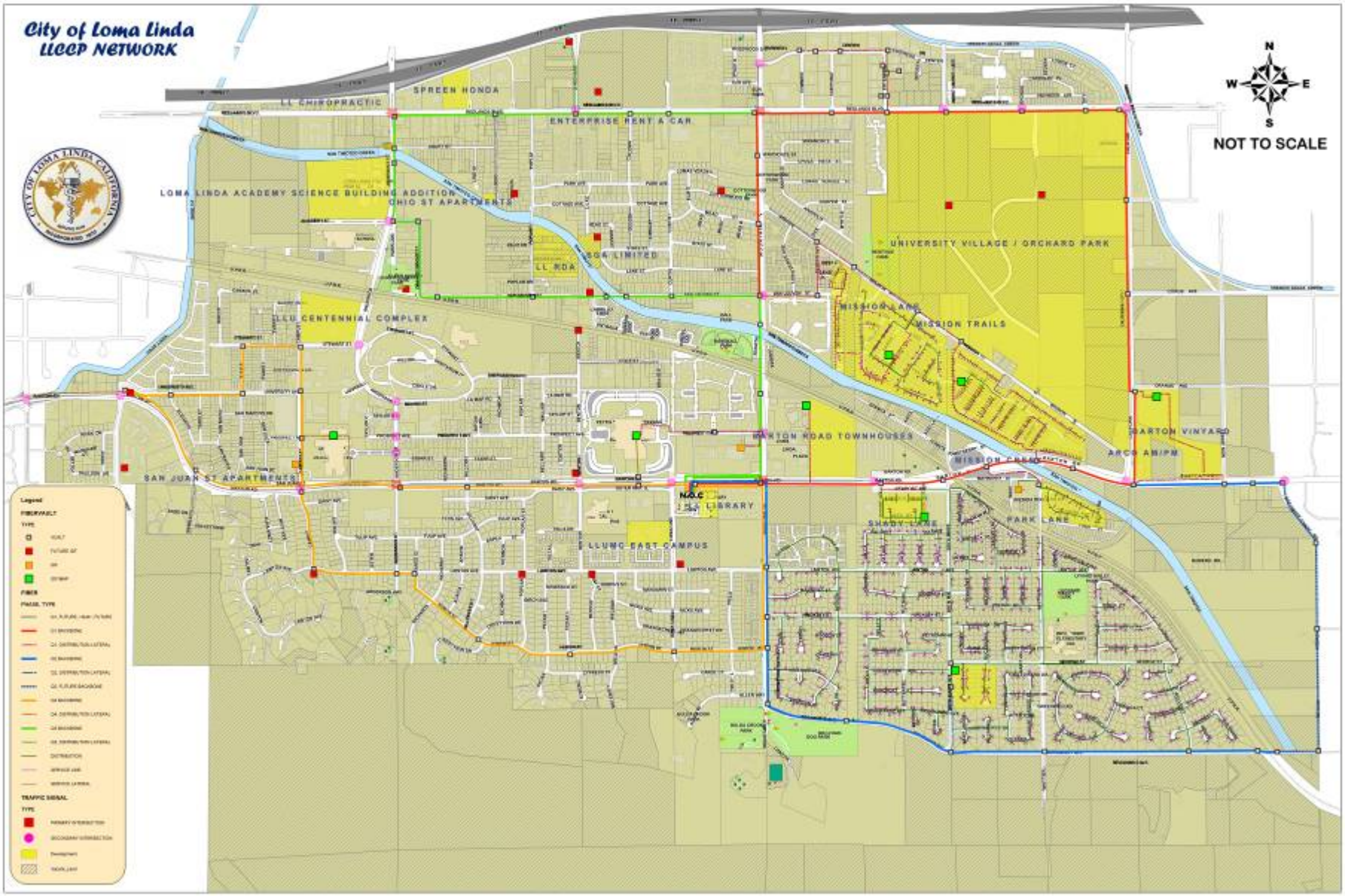
Fiber Infrastructure Uses

- Community Security Cameras in Public Areas
- Automatic Meter Reading and Data Collection
- Building Security and Access Control
- Park Facility Management
- Traffic Light Coordination
- Secure Transport of SCADA (Supervisory Control And Data Acquisition)
- Tele-Commuting – Live, Work, Play at Home
- Peer-to-Peer Communication – Video Conference
- Internet Connectivity
- Telephone Services
- Virtual Local Area Network Connections to Workplaces
- Video –LLBN, TV, LLU, Loma Linda Academy, and Web Based Services E.g. Cinemanow[tm], Movielink[tm]
- Smart Home, Smart Communities - Home Automation-
- Online and Entertainment


City of Loma Linda
LLCCP NETWORK
ASBUILT
Back Bone to Date
$2,943,380
N
W
E
S
NOT TO SCALE
LL CHIROPRACTIC
SPREEN HONDA
ENTERPRISE RENT A CAR
LOMA LINDA ACADEMY SCIENCE BUILDING ADDITION
OHIO ST APARTMENTS
SDA LIMITED
LL RDA
UNIVERSITY VILLAGE / ORCHARD PARK
MISSION LANE
MISSION TRAILS
LLU CENTENNIAL COMPLEX
BARTON ROAD TOWNHOUSES
BARTON VINYARD
ARCO AMPM
MISSION CREEK
SAN JUAN ST APARTMENTS
N.O.C
LIBRARY
SHADY LANE
PARK LANE
LLUMC EAST CAMPUS
Legend
FIBER/BUILT
TYPE
FIBER
PHASE / TYPE
TRAFFIC SIGNAL
TYPE
Development
Vacant Land

Take Rate May 25, 2006

American Pacific	47%
Richmond American	39%
Ryland Homes	57%
Trimark	58%


City of Loma Linda
LLCCP NETWORK
N
W
E
S
NOT TO SCALE
LL CHIROPRACTIC
SPREEN HONDA
ENTERPRISE RENT A CAR
LOMA LINDA ACADEMY SCIENCE BUILDING ADDITION
OHIO ST APARTMENTS
SDA LIMITED
LL RDA
UNIVERSITY VILLAGE / ORCHARD PARK
MISSION LANE
MISSION TRAILS
LLU CENTENNIAL COMPLEX
BARTON ROAD TOWNHOUSES
BARTON VINYARD
ARCO AM/PM
MISSION CREEK
SAN JUAN ST APARTMENTS
N.O.C
LLU LIBRARY
LLUMC EAST CAMPUS
SHADY LANE
PARK LANE
Legend
FIBER/VAULT
TYPE
FIBER
PHASE TYPE
TRAFFIC SIGNAL
TYPE


City of Loma Linda
LLCCP NETWORK
QUAD 2
NOT TO SCALE
SHADY LANE
PARK LANE
MONARCH COVE
MISSION CREEK
UNIVERSITY VILLAGE / ORCHARD PARK
BARTON VINYARD
ARCO AM/PM
Legend


LAWTON AVE
LAWTON AVE
LYNARD B
PARK
LEONARD
BAILEY
PARK
GARDNER ST.
BRYN MAWR
PEMBROKE ST.
MILFORD HAVEN RD.
GWENT ST.
ABERDARE ST.
WHITTIER AVE
PICTON ST.
HINCKLEY ST.
WINDSOR DR.
REYNOLDS ST.
NORMANDY LN.
BUCKINGHAM RD.
EMERALD DR.
CAMELOT ST.
CREST HAVEN CT.
BRYN MAWR
ELEMENTARY
GEORGE ST.
SAINT ALBANS
KING EDWARD DR.
RANDOLPH CT.
KELSEY CT.
MONARCH COVE
BRYN MAWR AVE.
NOTTINGHAM DR.
LANSDOWN RD.
GREENWICH RD.
MARGARITA LN.
ANTINO CIR.
BROOKMERE AVE.
BRIARWOOD CT.
BEVERLY CT.
ROYALE DR.
KNIGHTSBRIDGE PL.
FRANCISCO
CROWNE HTS. DR.
SAINT ANDREWS PL.
WESTMINSTER CT.
VICTORIA LN.
SANDRA CT.
ANTONIO CIR.
BEAUMONT AVE.
BEAUMONT AVE.

Home Values

- Render Vanderslice
  - ‘They found that homes that offered fiber to the home had an increased value of $4,000 to $15,000 over their competitors that did not offer broadband connectivity.’
    - *Fiber to the Home*: The Third Network Render Vanderslice and Associates

LLCCP Contributions

- Loma Linda became the first city in the United States to create and implement a fiber and structured-wiring building code for all new homes and business developments.
- Gained control its communication future though local representation
- Are no longer constrained by geography for its economic development potential.
- Loma Linda is now renowned internationally as a leader in community networking. i.e. Awards, World Bank Research and Network World Magazine Research.

NEW Point of Sale

Anixter

Moving from Anaheim

Year	Sales	Percent Increase	Sales Tax Increment	Loma Linda Portion
2005	74,000,000			
2006	82,880,000	12%	828,800.00	414,400.0
2007	87,024,000	5%	870,240.00	435,120.0
2008	91,375,200	5%	913,752.00	456,876.0
2009	95,943,960	5%	959,439.60	479,719.8
2010	100,741,158	5%	1,007,411.58	503,705.8
2011	105,778,216	5%	1,057,782.16	528,891.1
2012	111,067,127	5%	1,110,671.27	555,335.6
2013	116,620,483	5%	1,166,204.83	583,102.4
2014	122,451,507	5%	1,224,515.07	612,257.5
2015	128,574,083	5%	1,285,740.83	642,870.4
				5,212,278.7

Economic Development Opportunities
Prospecting New Points of Sale

Allied Telesis

INTEL Healthcare, Health Research & Innovation

GE HealthCare

Philips Medical Systems

Fiber Build Expenditures

Backbone Build Costs	5,002,112.25
Lateral Distribution Costs for Commercial and MDUs	2,218,243.13
Lateral Distribution Costs for Utilities	2,420,177.48
Lateral Distribution Costs for Existing Developments*	19,227,674.39
Total Expenditure for Fiber Infrastructure	28,868,207.25

* 8923 Units x $3,500 Per Unit

Development Impact Fees

Total Expenditure for Fiber Infrastructure	28,868,207.25
Allocation of Backbone for Utility	-2,625,477.88
Allocation of Lateral Distribution Costs for Utility	-2,420,177.48
Expenditure for Fiber Infrastructure	23,822,551.89

Customer Equipment Expenditures

New Development (4586 Customers)	x $800	3,668,880.00
Commercial and MDU (2702 Customers)	x $800	2,161,600.00
Existing Development (8923 Customers)	x $800	7,138,400.00
Total Expenditure Customer Equipment*		12,968,880.00

Equipment ROI = 3 years

***Purchased as needed on modular basis**

LLCCP Network Asset Value

Backbone Fiber	5,002,112.25
Lateral Fiber Distribution for Commercial and MDUs	2,218,243.13
Lateral Fiber Distribution for Utilities	2,420,177.48
Lateral Fiber Distribution for Existing Developments	19,227,674.39
Developer Contribution (Deeded Assets)	9,500,000.00
Fiber Infrastructure Asset Value	38,368,207.25

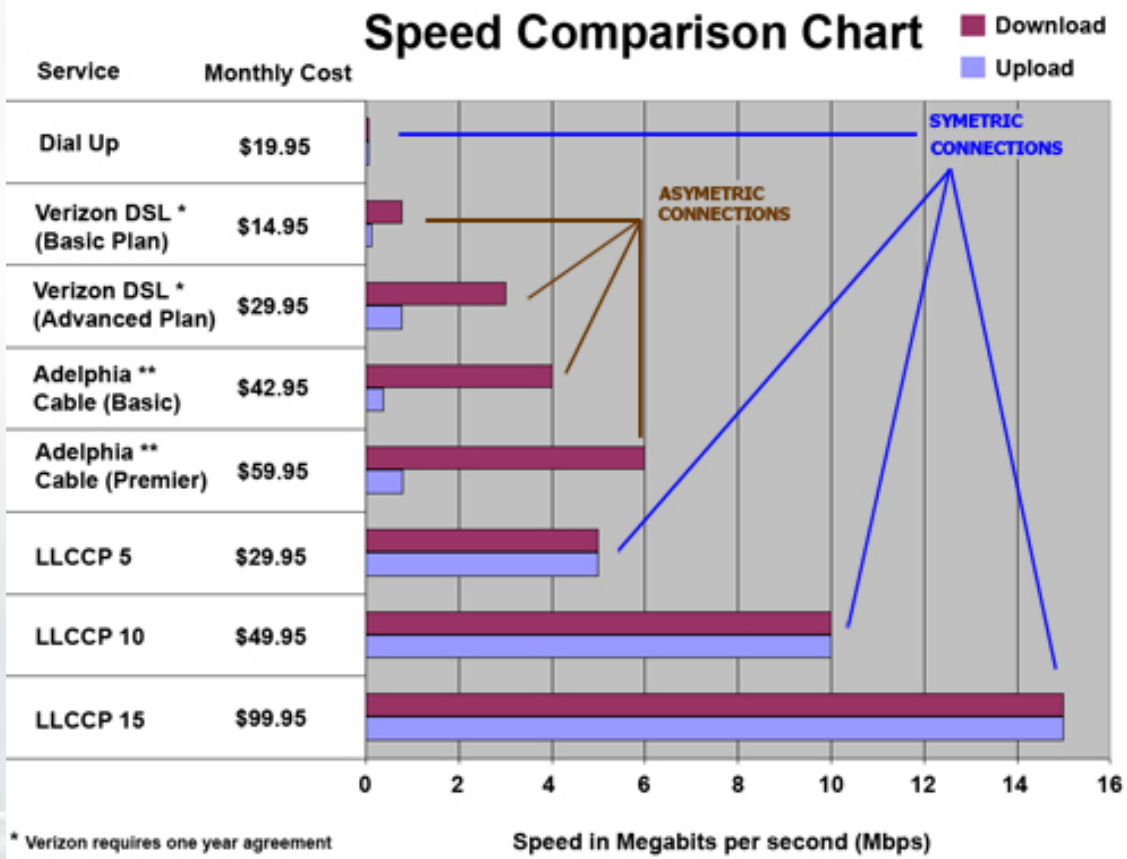
Loma Linda as a Market

Average Household Dollars Spent Monthly on Connectivity Services	**145.00**
Phone	35.00
TV & Video on Demand	60.00
Internet	50.00

Revenue Potential for Services Providers	**Customers**	**Monthly Revenue**	**Annual Revenue**
New Development	4,586	664,970.00	7,979,640.00
Existing Development	8,923	1,293,835.00	15,526,020.00
Commercial and MDU	2,702	391,790.00	4,701,480.00
Totals	16,211	2,350,595.00	28,207,140.00

Speed Comparison Chart

Service	Monthly Cost
Dial Up	$19.95
Verizon DSL * (Basic Plan)	$14.95
Verizon DSL * (Advanced Plan)	$29.95
Adelphia ** Cable (Basic)	$42.95
Adelphia ** Cable (Premier)	$59.95
LLCCP 5	$29.95
LLCCP 10	$49.95
LLCCP 15	$99.95



* Verizon requires one year agreement

** Adelphia requires additional purchase or rental of a modem

Potential Customer Revenue

	Customers	$30 Monthly	Annual Revenue	ROI
New Development	4,586	137,580.00	1,650,960.00	2.23
Existing Development	8,923	267,690.00	3,212,280.00	2.23
Commercial and MDU	2,702	81,060.00	972,720.00	2.23
	16,211	486,330.00	5,835,960.00	

Lets Review the Costs and Reviews

Recommendations

- Finish Building Backbone Rings with the sole source contractor we have selected and have been utilizing.
- Request that the Advisory Board evaluate other services to be offered including phone and video services.
- Start a marketing program to the residences to increase subscribers and interested customers.
- Come back with a report on the findings of the Advisory Board and the marketing results.
- Solve the staffing deficit.